

Star Island Beach, Rye

BEACH WATER QUALITY REPORT

SUMMER 2004



February 2005

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BACKGROUND

The New Hampshire Department of Environmental Services (NHDES) has operated its Public Beach Inspection Program, or Beach Program, for over twenty years. Coastal beach monitoring began in 1989 and has continued through the present. NHDES recognizes the threat to public health at public beaches and continues to monitor public beaches throughout the state for the presence of pathogenic organisms. Coastal beaches are monitored for the presence of the fecal bacteria *Enterococci*. These fecal bacteria are present in the intestines of warm-blooded animals including humans. Fecal bacteria, when present in high concentrations and ingested, can commonly cause gastrointestinal illnesses such as nausea, vomiting and diarrhea. They are also known as indicator organisms, meaning their presence in water may indicate the presence of other potentially pathogenic organisms.

In October of 2000, the United States Environmental Protection Agency (EPA) signed into law the Beaches Environmental Assessment and Coastal Health (BEACH) Act. The BEACH Act is an amendment to the Clean Water Act that authorizes the EPA to award grants to eligible states. The purpose of the BEACH Act is to reduce the risk of disease to users of the nation's recreational waters. BEACH Act grants provide support for development and implementation of monitoring and notification programs that help protect the public from exposure to pathogenic microorganisms in coastal recreation waters.

NHDES received grant funding in 2002 to develop and implement a beach monitoring and notification program consistent with EPA's performance criteria requirements published in the *National Beach Guidance and Required Performance Criteria for Grants* document (www.epa.gov/waterscience/beaches/grants). NHDES has successfully met all requirements and continues to expand the monitoring and notification program. In 2002, only 9 coastal beaches were monitored, in 2003 fifteen coastal beaches and in 2004 sixteen coastal beach were monitored on a routine basis.

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Beach Description

Star Island Beach is owned and operated by the Star Island Corporation. It is used by visitors to the island, which is accessible by ferry during the summer months.

Star Island Beach is a rocky beach with a total length of 37 feet. The beach is used by visitors of Star Island for swimming and snorkeling. The beach area is accessed near the dock at the main entrance of the island. Lifeguards are not present and sanitary facilities are not available at the beach area.

Waterfowl are frequently observed on Star Island. Star Island Corporation does not permit dogs on the island.

Below is a brief description of the sampling stations at Star Island Beach. The stations are pictured in Figure 1.

- The left sample station is located off the left end of the dock.
- The right sample station is located off the right end of the dock.

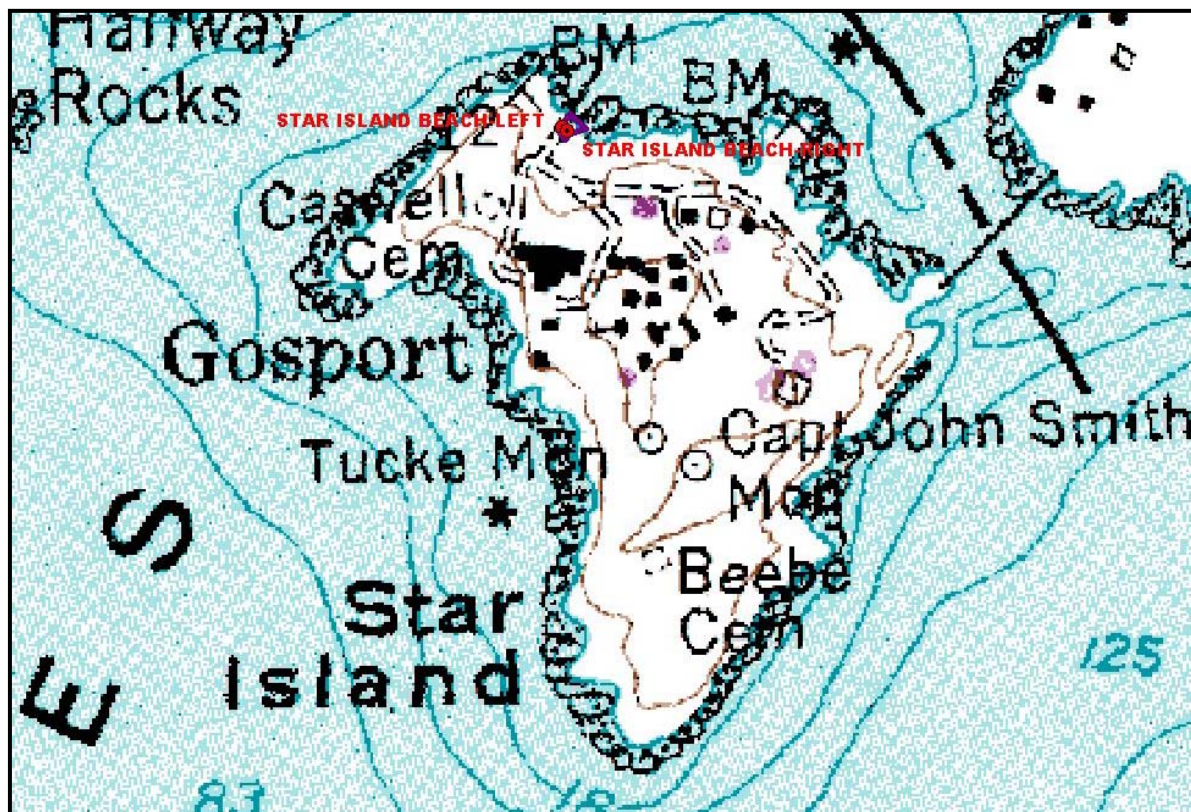


Figure 1. Map of Star Island Beach

Tier Status and Sampling Frequency

The Beach Program developed a risk-based beach evaluation process and tiered monitoring approach and implemented this approach during the 2003 beach season. Beach evaluations are conducted annually to determine potential health threats to the public. Evaluations are based on several criteria in three main categories: beach history, microbial pathogen sources, and beach use. Based on these criteria, beaches are assigned either a Tier I or Tier II status. Tier I are high priority beaches that have an increased potential to affect public health while Tier II are low priority beaches that have less potential to affect public health. Beach sample frequency is based on the Tier statuses; Tier I beaches are sampled weekly and Tier II beaches are sampled every other week.

Star Island Beach was categorized as a Tier II beach based on the Beach Program's Risk-Based Evaluation ranking system. This ranking indicates that the beach is not regularly used by the public and few potential pollution sources that could negatively affect public health were identified. The Star Island Tier II ranking has remained in place since the ranking system was implemented.

Current Year Water Quality

Beaches are monitored to ensure compliance with State Water Quality Standards. Marine waters are analyzed for the presence of the fecal bacteria Enterococci. Enterococci are known as indicator organisms, meaning their presence may indicate the presence of pathogenic bacteria. The state standard for Enterococci at public beaches is 104 counts/100 mL in one sample, or a geometric mean of 35 counts/100 mL in three samples collected over sixty days. Standard exceedances require the issuance and posting of a beach advisory. Beach advisories remain in effect until subsequent beach sampling indicates safe water quality conditions.

The number of samples collected at each beach is determined by the beach length. Beaches less than 100 feet in length are sampled at left and right locations 1/3 of the distance from either end of the beach. Beaches greater than 100 feet in length are bracketed into thirds and sampled at left, center and right locations. Routine sample collection may be enhanced by sampling known or suspected pollution sources to the beach area. Also, storm event sampling may be conducted at beaches where wet-weather events are expected to affect beach water quality.

The 2004 sampling season began June 1st. June was cooler and drier than normal, July was cooler and wetter than normal, while August was warmer and wetter than normal. The sampling season encompassed 108 days, of which precipitation was recorded on 42 days (based on Seabrook WWTF recorded precipitation). Twenty beach days (normal beach hours are considered 9:00 a.m. to 5:00 p.m.) were directly affected by precipitation.

Star Island Beach was sampled once every two weeks from July 1st through Labor Day. Two samples were collected at left and right stations (Figure 1). There were a total of four routine inspections performed and eight samples collected in 2004.

Table 1 includes the Enterococci data from each sampling event in 2004. The Enterococci levels at Star Island beach were very low this season. No advisories were issued for this beach in 2004.

Table 1. Star Island Beach Enterococci Data 2004

Sample Date	Station Name	Results (counts per 100 mL)
07/12/2004	Star Island Beach – Left	10
	Star Island Beach – Right	< 5
07/27/2004	Star Island Beach – Left	< 10
	Star Island Beach – Right	< 5
08/10/2004	Star Island Beach – Left	< 10
	Star Island Beach – Right	< 5
08/24/2004	Star Island Beach – Left	10
	Star Island Beach – Right	< 10

Figure 2 depicts the Enterococci data in relation to the state standard for coastal beaches.

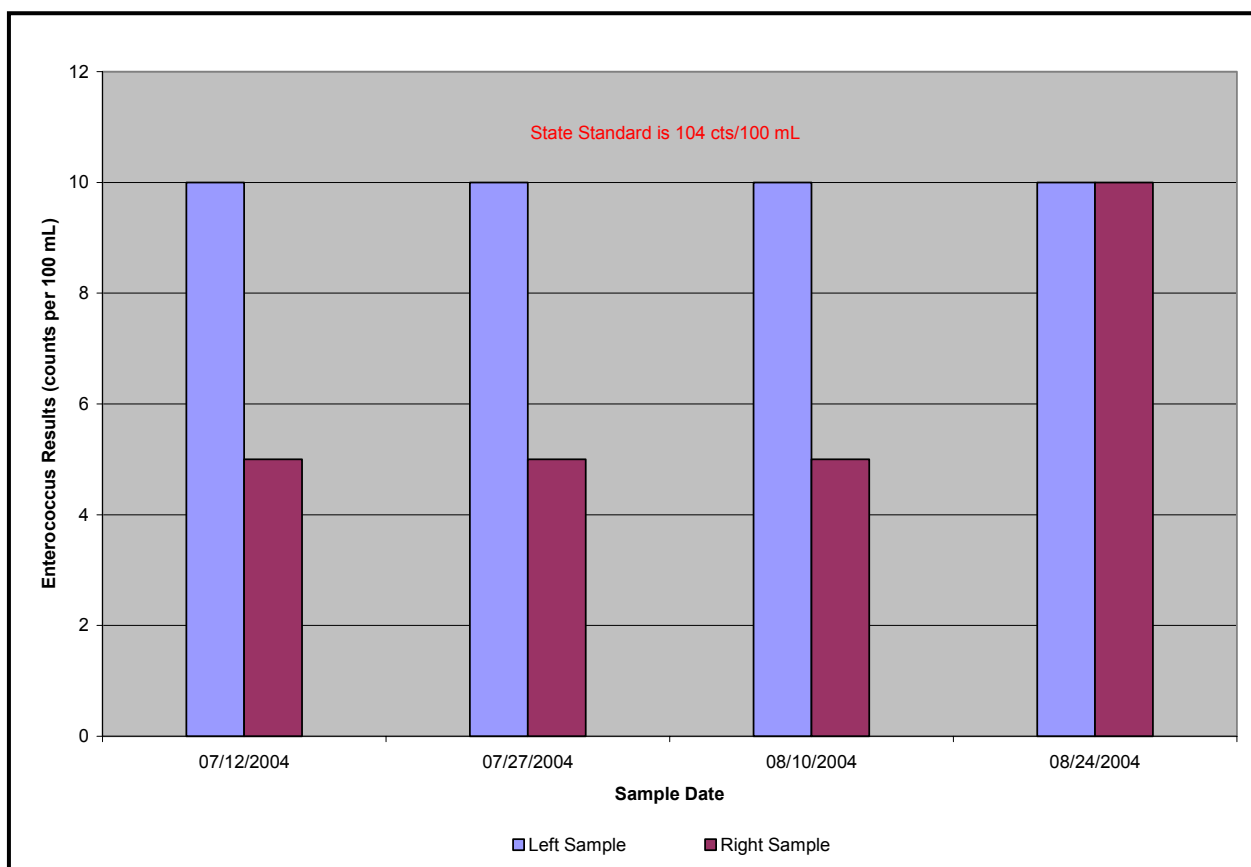


Figure 2. Star Island Beach Enterococci Data 2004

The Beach Program staff analyzed whether a relationship exists between elevated Enterococci levels and precipitation at Star Island Beach. Analyses of the data indicate no direct correlation. DES will continue to monitor precipitation data and Enterococci levels. Precipitation often causes elevated bacteria levels due to runoff in the watershed.

Areas of Concern

In discussions with the Star Island Facilities Manager, it was mentioned that boat sewage is a concern for the beach area. There are a large number of mooring sites in the vicinity of the beach area where boats are often moored. All boats equipped with toilet facilities must dispose of their waste outside of the 3 mile coastal zone. If they are within the 3 mile coastal zone, they must use boat pumpout facilities located at many areas along the coast or the pumpout boat that is available. Please contact Jody Connor at (603) 271-3414 to discuss the possibility of a regularly scheduled pumpout service.

Thoughts for the Future

- We applaud Star Island Corporation for maintaining a healthy environment for beach use. Keep up the good work!